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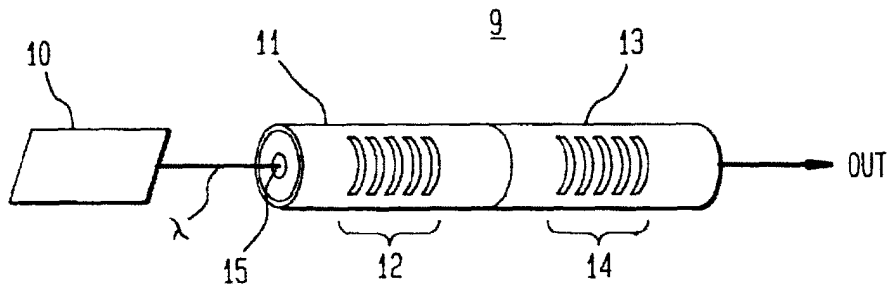
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(54) **Optical pulse compressor for optical communications systems**

(57) In accordance with the invention, an optical pulse compressor comprises a pulse source (10), a section of nonlinear optical waveguide (11) including a periodic structure such as Bragg grating (12), for providing positive dispersion and a section of linear optical waveguide (13) including a negative dispersion component (14). The nonlinear waveguide should have a second order index  $N_2$  at least ten times the second order index  $N_2'$  of the linear waveguide. The nonlinear

waveguide is preferably chalcogenide fiber, with a Bragg grating photoinduced into the core. Because the grating is 4-5 orders of magnitude more dispersive than standard optical fiber, the length of the nonlinear waveguide section can be scaled down to a few centimeters with accompanying reduction of deleterious processes. Modeling suggests that compression factors of 5 with an initial 60 ps pulse are achievable with grating lengths of about 20 cm.

**FIG. 1**





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EUROPEAN SEARCH REPORT

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EP 98 30 9842

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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